ABSTRACT

The present invention relates to a method and a structure for ATA bus protocol compatible time-division multiplexing data transfer of single-bus and multi-drive. It mainly consists of a primary ATA bus arbiter and several ATA/HD bridges and concurrent ATA master drives. The primary ATA bus arbiter combines the bus requests of ATA bus masters to complete time-division multiplexing on the host side and allocate the ATA bus application. The ATA/HD bridges are used to respond to the on-line requests of the bus masters by switching the time-division multiplexing on the target side and resolve the possible bus contention that may be generated when two or more ATA drives are acting simultaneously. The concurrent ATA master drives will default all ATA drives as master drives under a bridge structure to allow them to become independent to each other so as to carry out respective commands and await requests from the main system individually. By means of the foregoing structure, data transfer of ATA/ATAPI device in concurrent ATA bus condition will not generate any effect on ATA/ATAPI device. Also, multi-drive explosive data transfer can now be accomplished to improve the total efficiency of the bus bandwidth by switching the time-division of single bus.